

CLAIMS

1. A chemical vapor deposition apparatus comprising:
  - a subatmospheric substrate transfer chamber;
  - a subatmospheric deposition chamber defined at least in part by a chamber sidewall;
  - a passageway in the chamber sidewall extending from the transfer chamber to the deposition chamber, and through which semiconductor substrates pass into and out of the deposition chamber for deposition processing; and
  - a mechanical gate within at least one of the deposition chamber and the sidewall passageway configured to open and close at least a portion of the passageway to the chamber.
2. The apparatus of claim 1 further comprising purge gas inlets received within the passageway, the mechanical gate being received downstream of the purge gas inlets.
3. The apparatus of claim 1 wherein the gate is mounted for sliding movement.

4. The apparatus of claim 1 wherein the passageway extends through the chamber wall along a shortest possible straight line from the transfer chamber to the deposition chamber, the gate being mounted for sliding movement which is perpendicular to said straight line.

5. The apparatus of claim 1 wherein the passageway has a total open cross section immediately proximate the gate, the gate being configured to open and close all of said passageway cross section.

6. The apparatus of claim 5 wherein the passageway has a length from the transfer chamber to the deposition chamber, the gate being configured to open and close the passageway along all of said passageway length.

7. The apparatus of claim 1 wherein the gate is mounted for movement within the passageway.

8. The apparatus of claim 7 wherein the passageway has a total open cross section immediately proximate the gate, the gate being configured to open and close all of said passageway cross section.

9. The apparatus of claim 7 wherein the passageway has a length from the transfer chamber to the deposition chamber, the gate being configured to open and close the passageway along only a portion of said passageway length.

10. The apparatus of claim 1 wherein the gate is mounted for movement within the deposition chamber.

11. The apparatus of claim 10 wherein the passageway has a total open cross section immediately proximate the gate, the gate being configured to open and close all of said passageway cross section.

12. The apparatus of claim 1 further comprising a mechanical gate within the transfer chamber configured to open and close all of the passageway to the transfer chamber.

13. The apparatus of claim 1 further comprising a chamber liner apparatus forming a deposition subchamber within the deposition chamber, the mechanical gate comprising a portion of the chamber liner apparatus.

14. A chemical vapor deposition apparatus comprising:

- a subatmospheric substrate transfer chamber;
- a subatmospheric deposition chamber defined at least in part by a chamber sidewall;
- a passageway in the chamber sidewall extending from the transfer chamber to the deposition chamber, and through which semiconductor substrates pass into and out of the deposition chamber for deposition processing; and
- purge gas inlets received within the passageway; and
- a gate associated with the passageway downstream of the passageway purge gas inlets and configured to open and close at least a portion of the passageway to the chamber.

15. The apparatus of claim 14 wherein the gate is a mechanical gate mounted for sliding movement.

16. The apparatus of claim 14 wherein the passageway extends through the chamber wall along a shortest possible straight line from the transfer chamber to the deposition chamber, the gate being a mechanical gate mounted for sliding movement which is perpendicular to said straight line.

17. The apparatus of claim 14 wherein the passageway has a total open cross section immediately proximate the gate, the gate being configured to open and close all of said passageway cross section.

18. The apparatus of claim 17 wherein the passageway has a length from the transfer chamber to the deposition chamber, the gate being configured to open and close the passageway along all of said passageway length.

19. The apparatus of claim 14 wherein the gate is a mechanical gate mounted for movement within the passageway.

20. The apparatus of claim 19 wherein the passageway has a total open cross section immediately proximate the gate, the gate being configured to open and close all of said passageway cross section.

21. The apparatus of claim 19 wherein the passageway has a length from the transfer chamber to the deposition chamber, the gate being configured to open and close the passageway along only a portion of said passageway length.

22. The apparatus of claim 14 wherein the gate is a mechanical gate mounted for movement within the deposition chamber.

23. The apparatus of claim 22 wherein the passageway has a total open cross section immediately proximate the gate, the gate being configured to open and close all of said passageway cross section.

24. The apparatus of claim 14 further comprising a mechanical gate within the transfer chamber configured to open and close all of the passageway to the transfer chamber.

25. The apparatus of claim 14 further comprising a chamber liner apparatus forming a deposition subchamber within the deposition chamber, the gate comprising a portion of the chamber liner apparatus.

26. A chemical vapor deposition apparatus comprising:

- a chamber defined at least in part by a chamber sidewall;
- a passageway in the chamber sidewall extending from externally of the chamber to the chamber, and through which semiconductor substrates pass into and out of the chamber for deposition processing; and
- a chamber liner apparatus forming a deposition subchamber within the chamber, at least a portion of the chamber liner apparatus being selectively movable to fully expose and to fully cover the passageway to the chamber.

27. The apparatus of claim 26 further comprising a movable substrate holder received within the subchamber, the portion of the chamber liner apparatus being mounted for movement independent of movement of the substrate holder.

28. The apparatus of claim 26 further comprising a movable substrate holder received within the subchamber, the portion of the chamber liner apparatus being mounted for movement with movement of the substrate holder.

29. The apparatus of claim 26 wherein the portion is mounted for elevational movement, upward movement of the portion to a first position fully exposing the passageway, downward movement of the portion to a second position fully covering the passageway.

30. The apparatus of claim 26 wherein the portion is mounted for elevational movement, upward movement of the portion to a first position fully covering the passageway, downward movement of the portion to a second position fully exposing the passageway.

31. The apparatus of claim 26 wherein an entirety of the liner apparatus is selectively movable to fully expose and to fully cover the passageway to the chamber

32. The apparatus of claim 26 wherein only a portion of the liner apparatus is selectively movable to fully expose and to fully cover the passageway to the chamber, another portion of the liner apparatus not being mounted for movement.

33. A chemical vapor deposition apparatus comprising:

a chamber defined at least in part by a chamber sidewall;

a passageway in the chamber sidewall extending from externally of the chamber to the chamber, and through which semiconductor substrates pass into and out of the chamber for deposition processing; and

a movable chamber liner apparatus forming a deposition subchamber within the chamber, the liner apparatus having a substrate opening therethrough, the liner apparatus being mounted for movement to a first position in which the opening is aligned with the passageway and to a second position in which the opening is not aligned with the passageway.

34. The apparatus of claim 33 wherein the liner apparatus is configured to at least partially cover the passageway from exposure to the chamber in the second position.

35. The apparatus of claim 33 wherein the liner apparatus is configured to fully cover the passageway from exposure to the chamber in the second position.

36. The apparatus of claim 33 wherein the passageway has a total open cross section where it joins with the chamber, the opening being at least as large as said cross section.

37. The apparatus of claim 33 wherein the passageway has a total open cross section where it joins with the chamber, the opening having a shape the same as that of said cross section.

38. The apparatus of claim 33 wherein the passageway has a total open cross section where it joins with the chamber, the opening having a size and shape the same as that of said cross section.

39. The apparatus of claim 33 further comprising a movable substrate holder received within the subchamber, the chamber liner apparatus being mounted for movement independent of movement of the substrate holder.

40. The apparatus of claim 33 further comprising a movable substrate holder received within the subchamber, the chamber liner apparatus being mounted for movement with movement of the substrate holder.

41. The apparatus of claim 33 wherein the liner apparatus is mounted for elevational movement, upward movement of the liner apparatus to the first position fully exposing the passageway, downward movement of the liner apparatus to the second position fully covering the passageway.

42. The apparatus of claim 33 wherein the liner apparatus is mounted for elevational movement, upward movement of the liner apparatus to the second position fully covering the passageway, downward movement of the liner apparatus to the first position fully exposing the passageway.

43. A chemical vapor deposition apparatus comprising:

- a chamber defined at least in part by a chamber sidewall;
- a passageway in the chamber sidewall extending from externally of the chamber to the chamber, and through which semiconductor substrates pass into and out of the chamber for deposition processing, the passageway having a total open cross section where it joins with the chamber; and
- a movable chamber liner apparatus forming a deposition subchamber within the chamber, the liner apparatus having a substrate opening therethrough, the opening being at least as large as said total open cross section of the passageway, the liner apparatus being mounted for elevational movement to a first position in which the opening is aligned with the passageway and to a second position in which the opening is not aligned with the passageway.

44. The apparatus of claim 43 wherein the liner apparatus is configured to at least partially cover the passageway from exposure to the chamber in the second position.

45. The apparatus of claim 43 wherein the liner apparatus is configured to fully cover the passageway from exposure to the chamber in the second position.

46. The apparatus of claim 43 wherein the passageway has a total open cross section where it joins with the chamber, the opening having a shape the same as that of said cross section.

47. The apparatus of claim 43 wherein the passageway has a total open cross section where it joins with the chamber, the opening having a size and shape the same as that of said cross section.

48. The apparatus of claim 43 further comprising a movable substrate holder received within the subchamber, the chamber liner apparatus being mounted for movement independent of movement of the substrate holder.

49. The apparatus of claim 43 further comprising a movable substrate holder received within the subchamber, the chamber liner apparatus being mounted for movement with movement of the substrate holder.